4.0 WINDOWS AND WINDOW ICONS

4.1 WINDOW MANAGEMENT

4.1.1 Window Components

A window, shown in figure 4-1, consists of (1) a window frame containing components that provide access to window management functions and (2) an application or client area within the frame in which the application displays information and interacts with users. The window frame includes a title bar, Window menu, window control buttons, and a resize border.

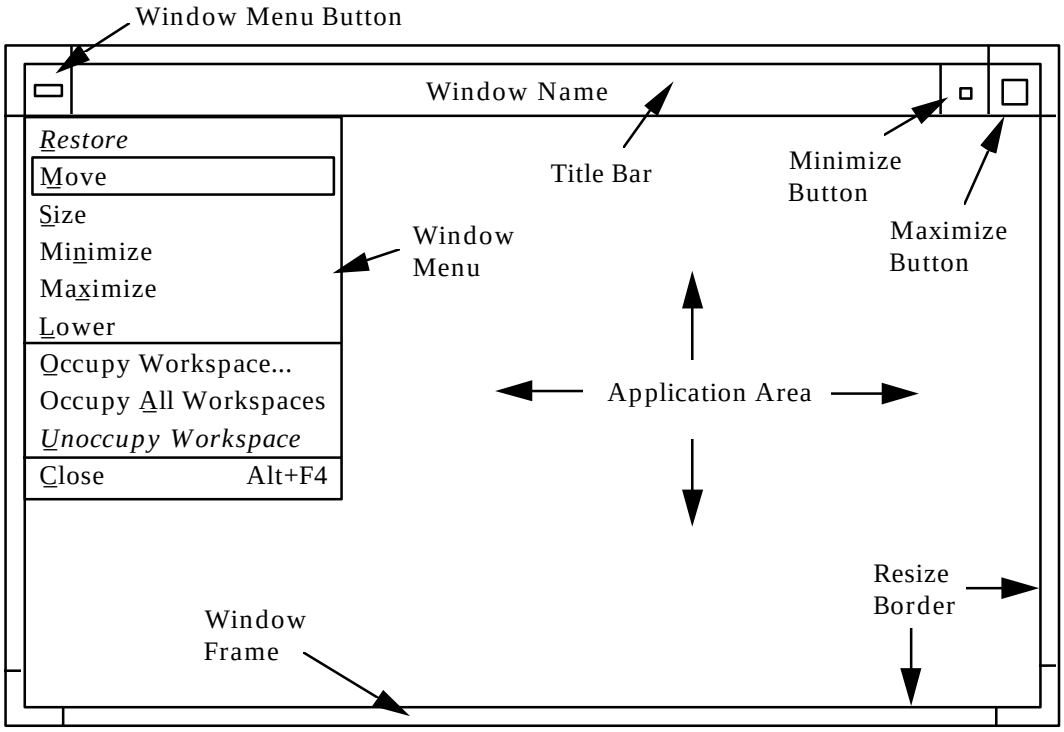

Figure 4-1. Standard window components in Motif.

4.1.1.1 Title Bar

The title bar extends across the top of the window, with the window name displayed in the middle of the bar. Clicking on the title bar raises the window to the front of the screen and gives it input focus. Pressing BSelect or BTransfer on the title bar and then dragging the pointer moves an outline of the window as the pointer moves. Releasing the button on the pointing device places the window at its new location.

4.1.1.2 Window Menu

If a window supports any window management functions, it has a Window menu with options for performing the functions. The Window menu button is displayed at the left edge of the title bar. Selecting this button displays a Window menu, as shown in figure 4-1. If a window management function is included in the menu, it executes the action and includes the mnemonic listed in appendix C.

Motif and Windows recommend including an accelerator only for the Close option in a Window menu.[1] If the application includes accelerators for other menu options, it uses the ones listed in appendix C.

Motif Only: If any of the following window management functions is included in a Window menu, they are ordered: Restore, Move, Size, Minimize, Maximize, Lower, Occupy Workspace, Occupy All Workspaces, Unoccupy Workspace, and Close. Separators are included after the Lower option and before the Close option.

Windows Only: If any of the following window management functions is included in a Window menu, they are ordered: Restore, Move, Size, Minimize, Maximize,, and Close. The Window menu may also include Switch To and Next options, both of which follow Close. Separators are included before the Close option and after it if additional options are included in the menu.

The application can add window functions to the Window menu only under extraordinary circumstances. If functions are added, they are appended to the bottom of the menu, with a separator between Close and the added options.

Spring-loaded and posted menu selection methods (see section 5.1.2) are used to display the Window menu and activate options with the pointing device. Double clicking on the Window menu button closes the window. In an application window, <Alt><Space> (or <Shift><Escape> in Motif) selects the Window menu button, displays the Window menu, and moves the location cursor to the first available option in the menu.

Windows Only: In a document window, <Alt><Hyphen> selects the Window menu button, displays the Window menu, and moves the location cursor to the first available option in the menu.

The arrow keys move the location cursor between available options in the Window menu, and <Enter> (or <Return>, <Select>, or <Space> in Motif) activates an option and dismisses the menu. <Esc> (or <Cancel> in Motif) dismisses the menu without activating an option and returns the location cursor to its position before the menu was displayed.

4.1.1.3 Window Control Buttons

The Maximize button is displayed at the right edge of the title bar. The graphic in the Maximize button is a large square in Motif and an up arrow in Windows.

Motif Only: Activating the Maximize button in a normal-size window expands it to its maximum size. Activating this button in a maximized window restores the window to its size and location before being maximized.

Windows Only: Activating the Maximize button in a normal-size window expands it to its maximum size and replaces the button with a Restore button. Activating the Restore button in a maximized window restores the window to its size and location before being maximized.

The Minimize button is displayed in the title bar to the left of the Maximize button. The graphic in the Minimize button is a small square in Motif and a down arrow in Windows. Activating the Minimize button changes the window into a window icon.

If additional window management functions are defined by the application, they are mapped to buttons placed to the left of the Minimize button or to the right of the Window menu button.

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[1] Previous versions of Motif included accelerators for each option in the Window menu.

4.1.1.4 Resize Border

No window components are placed outside the boundary formed by the resize borders. Pressing BSelect or BTransfer on the resize border and dragging the pointer moves an outline of the window as the pointer moves. The window is resized when the button on the pointing device is released.

Windows Only: All windows have frames except when they are maximized and fill the entire screen.

4.1.2 Behavior in Window Families

These specifications assume that an application uses one or more primary windows to provide access to data and associated operations for the top-level tasks in the application. The application displays secondary windows to present supplementary or supporting data or operations related to the primary window. These specifications define two types of secondary windows: a secondary task window (which is used for short-term interactions with data and controls related to the primary window) and a dialog window (which is used to present messages or conduct a brief dialog with the user).[2] This style guide refers to secondary task windows and dialog windows collectively as secondary windows, unless otherwise indicated.[3]

When users open a document or data file created by an application, the contents of the file are loaded into the application window that is opened. In Motif, the application can display only one file in the window at any given time. In Windows, the application can open a single document or multiple documents simultaneously. When the latter occurs, each document is displayed in a document window, all of which are placed within the application window. This style guide considers document windows to be a type of primary window and provides separate design specifications for them as needed to address their unique characteristics (see section 8.1.2.13).

4.1.2.1 Parent-Child Relationships

A window family consists of a main or parent window and one or more subordinate or child windows. The primary window is the parent for all other windows in the family. When a primary window is minimized, it and all of the secondary windows for which it is the parent are removed from the screen and replaced with a window icon. All processing in the primary window continues. When the window icon is opened, the window and all of its secondary windows that were displayed on the screen when the window was minimized re-appear. Each primary window in the application is minimized separately.

When a primary window is raised or lowered, it and all of the secondary windows for which it is the parent move with it. When a primary window is closed, it and all of the secondary windows for which it is the parent are removed from the screen, and all processing in the primary window stops. When the last primary window for the application is closed, the application is also closed.

Windows Only: A document window is a parent but also the child of the application window within which it is displayed.

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[2] In Motif and Windows, secondary windows take the form of dialog windows so that the two terms are synonymous. The specifications presented here extend the basic definition of primary and secondary windows using the distinction made in the Bellcore style guide.

[3] Another type of window in Motif is a menu window; it is described in section 5.3 on tear-off menus.

When a secondary window is opened, it appears in front of its parent window, and the parent window remains displayed. When a secondary window is closed, it and any other windows that are its children are closed but its parent window is not affected. The preferred DII implementation is for dialog windows to have no children (except a help window, if one is available).

4.1.2.2 Modes of Interaction

The mode assigned to a child window determines the extent to which users can interact with other windows while the window is displayed. If a window is modeless, users can interact with other windows while it is displayed on the screen. If a window is modal, users are restricted from interacting with other application and/or system windows while it is displayed. A primary modal window does not allow interaction with any parent of the window, an application modal window does not allow interaction with any window created by the same application even if the application has multiple primary windows, and a system modal window does not allow interaction with any other window on the screen. Figure 4-2 illustrates the interaction restrictions for each type of modality.

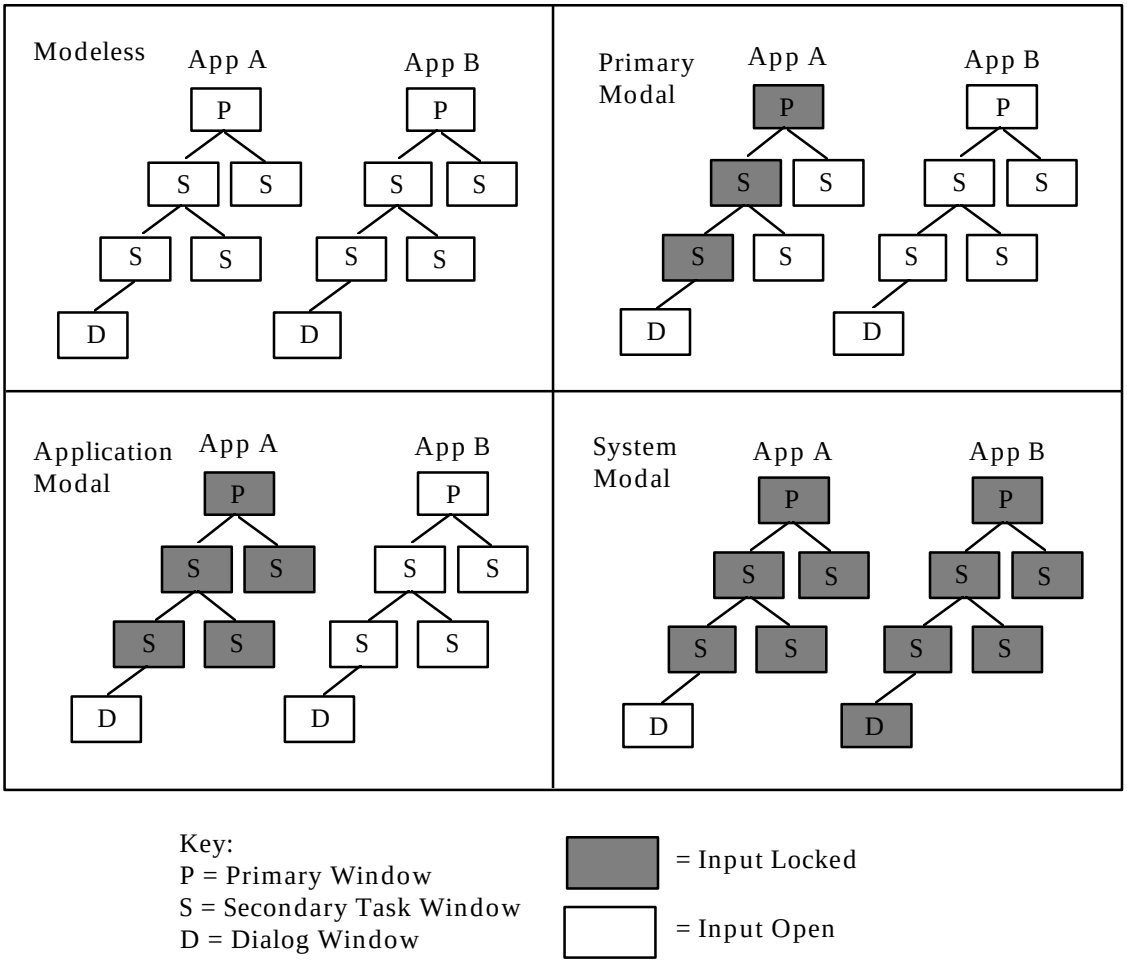

Figure 4-2. Interaction restrictions in modeless and modal windows.

Motif Only: Four types of modality are available: modeless, primary modal, application modal, and system modal. Child windows are modal only when the application cannot proceed without additional information (e.g., potential loss of data). Child windows are not system modal (i.e., block interaction with other applications) unless it is essential that users perform no

other action on the desktop until they respond to the window. Similarly, child windows are not application modal unless it is essential that the state of the application remains unchanged until users respond to the window.[4]

Windows Only: Four types of modality are available: modeless, application modal, application semimodal, and system modal. Application semimodal windows are similar to application modal windows but permit limited interaction outside the window as a means of responding to the window. Child windows (e.g., message dialog windows) are modal (see section 8.2.1).

4.1.3 Window Management Considerations

4.1.3.1 Window Size

The normal size of a window is large enough so that all of the objects in the window are visible when it is displayed on the screen. At a minimum, a window is wide enough to read the window title, and tall enough to read the contents of the title bar and menu bar.

When a window is maximized, more of the window content (i.e., objects and controls) is displayed but the size of the objects in the window does not change. Similarly, when a window is resized, the size of objects in the window and their relative position does not change. For example, if a text window is maximized, the size of the window increases, but the size of the text does not change. When a window is resized, the contents of the window remain visible so that users can view the effect of the change in size on the amount of information that can be seen.

A window can be resized larger only if more information will be visible in the window. The extent to which a window can be resized larger is limited so that any "restricted" areas of the screen (e.g., the classification bar) cannot be obscured. Likewise, the maximum size of a window is defined so that none of these areas is covered when an application window is maximized.

4.1.3.2 Window Arrangement

Windows can be arranged in either an overlapping or tiled placement. With overlapping placement, windows are stacked on top of one another; when a new window is opened, it is displayed in front of those already on the screen. A cascaded arrangement is a form of overlapping placement where windows are stacked one behind the other, keeping the title bar of each window visible. With tiled placement, windows are sized and positioned so that each one is completely visible at all times. The preferred implementation in the DII is overlapping placement.\

4.1.3.3 Window Positioning

When a window is initially displayed, it is positioned on the screen so that it is completely visible. If a new window is related to other windows already displayed, it is positioned so that it does not obscure important information in the other windows. The new window is offset below and to the right of the information to which it relates so that the title of the window underneath remains visible (i.e., in a cascaded arrangement). If space is insufficient, the window is displayed to the left, below, or above the information. If a new window (e.g., a dialog window) is not related to other windows currently open, it positioned in the center of the screen (or in the center of the application window in Windows). If a dialog window (or menu window in Motif) is already displayed but obscured by other windows, re-choosing the command that displayed the window raises it to the front of the window stack without affecting its position on the screen.

[4] Previous versions of Motif required that certain types of dialog windows be modal.

4.1.3.4 Processing in Minimized Windows

Users are informed when processing events occur in minimized windows. In Motif, a message window is displayed when a critical processing event (e.g., when processing stops, when an error occurs, when additional input is needed) occurs in a minimized window. In Windows, the icon for a minimized window flashes, with a message window displayed when the user restores the minimized window.

4.1.3.5 Moving Windows Between Workspaces (Motif Only)

Users may have several workspaces active on the desktop, with the application available in one or more workspaces. When the application opens a new window, it is displayed in the user's current workspace and only occupies that workspace. When the user moves application windows between workspaces, those windows related to a particular task move together. For example, the secondary windows for configuring a primary map window move with the primary window that is their parent; however, in an application with multiple independent primary windows (e.g., a set of word processing documents), moving one of the windows does not move the others.

4.2 WINDOW ICONS

4.2.1 Appearance

A window icon provides a visual representation of a minimized window or window family. When a window is minimized, the icon can be displayed directly on the workspace or in an icon box. A window icon consists of a graphic image and a label, as shown in figure 4-3.

Motif Only: The graphic image in a window icon is the same as that used for the application icon on the desktop.

The design of icon graphics is addressed in section 7.2.3.1 and appendix D. The label is located below the image and has the same title as the corresponding window.

Motif Only: When an icon does not have focus, its label is the same width as the icon image; the label is truncated as needed to fit. When an icon has focus, the location cursor is displayed on the icon and the full icon title displayed. A window icon includes a Window menu with the same options (except Size) as the Window menu of the corresponding window. Minimize can be included in the menu but is not available for selection.

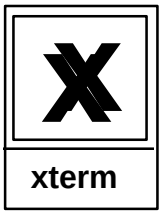

Figure 4-3. Example window icon in Motif.

4.2.2 Behavior

Placing the pointer on a window icon and double clicking BSelect restores a minimized window and its children. If the window had been maximized prior to being minimized, double clicking on the icon displays the window in its maximized size. Placing the pointer on an icon and dragging it with BSelect or BTransfer moves the icon.

Motif Only: Placing the pointer on a window icon and clicking BSelect displays the Window menu. Clicking BSelect anywhere outside the menu dismisses the menu. Navigating to an icon from the keyboard gives the icon focus and displays the Window menu. Selecting the Maximize option in the Window menu displays the window in its maximized size.